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(54) AN APPLIANCE FOR THE SIMULTANEOUS APPLICATION OF MASSAGE MOVEMENTS AND THERAPEUTICALLY ACTIVE STIMULATING CURRENTS

(71) We, DIETER BRUNS of Tenderingstrasse 5, D—4150 Krefeld, Germany and ERICH JORDAN of Hohenzollernstrasse 57, D—4150 Krefeld, Germany, both of German nationality, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to the simultaneous application of mechanical massage movements, such as sliding, kneading or vibrating movements, and electrical therapy by the administration of, for example low-frequency or medium-frequency stimulating current, using two or more electrodes, for the purpose of physiotherapy and body treatment in general.

Stimulating current therapy appliances of various kinds are known which are intended to apply low-frequency or medium-frequency current by way of plate, pad, suction or special electrodes. In these appliances, the electrodes are fixed to the body or have to be held during treatment or displaced as and when required.

Electro-kinesis is also known, wherein stimulating current is introduced by way of glove or flat-of-the-hand electrodes which are moved by the person giving the treatment on the patient's body.

Various appliances have also been designed for the simultaneous application of massage and electrical therapy, the electrical therapy comprising the application of direct current (also weak current), or alternating current such as high-frequency current.

The massage loosens the body tissue and causes an intensive supply of blood therein, which, in turn, provides better conductivity for the stimulating current and thus allows a more satisfactory depth of action and at the same time brings about a hyperaemic condition. These effects supplement and strengthen one another during the course of the treatment.

The latter appliances have, however, the disadvantage that they can only be used for simultaneous massage and electrical therapy and permit only the combination of a specific kind of massage with a specific stimulating current treatment. The appliances are, furthermore, relatively expensive. A further massaging apparatus is known which produces vibrations in a horizontal or vertical direction, or in a combination of such directions, with the object of applying mechanical massage movements, i.e. vibration, sliding or kneading. Such apparatus comprises a massaging device having a driving motor which serves as a power source for the massaging movement, the device being arranged to receive interchangeably various massaging attachments. The attachments have at one end thereof a shaft for connection to the device, the shaft being for example threaded or plain. Such apparatus will be referred to hereinafter as "massaging apparatus of the kind described."

With a view to overcoming the disadvantages described above which occur in known apparatus for the simultaneous application of electrical therapy and mechanical massage, the invention provides, for use in massaging apparatus of the kind described an attachment which comprises a head having a shaft adapted for connection to the massaging device of the apparatus and a base which is arranged to be detachably connected to the head the base carrying electrodes for applying electrical therapy, the attachment having electrical conductors which, when the base is connected to the head, extend from respective ones of the electrodes in the base into the head, whereby the conductors can be electrically connected by means of a lead connected to the head to a unit for producing electricity for the electrical therapy, each

conductor being formed where it passes from the base to the head with a connector having two parts, one part of each connector being disposed on the base and being arranged to connect with the other part of the connector which is disposed on the head.

The massaging device may be used selectively either with an attachment according to the invention or with a known attachment providing mechanical massage only. It is also possible by providing a suitable selection of attachment bases, each provided with electrodes, to provide for various kinds of treatment using one head.

In order that the invention may be more readily understood, an embodiment of an attachment according to the invention will now be described by way of example and with reference to the accompanying drawing which is a sectional view through such an attachment.

The illustrated attachment is for use in massaging apparatus of the kind descried, which apparatus may be battery or mains operated.

The attachment illustrated, like the known attachments, has a shaft adapted for connection to the massaging device whereby massaging movement may be produced in the attachment.

The attachment has a head 1 and a base 2 interchangeably connected to the head 1.

The base 2 is provided with four electrodes 3, only three of which are shown in the figure, the electrodes serving to convey electric current to the skin for electrical therapy. The electrodes 3 are embedded in the base 2 of the attachment except for the active face portions of such electrodes. The electrodes are soldered at 5 to rigid electrically conductive parts 4.

Each conductive part 4 is electrically connected to a pin 8, such pin being mechanically connected to the base 2 (and to a part 4) by screw threads as indicated on the drawing.

The head 1 of the attachment is provided with recesses 7 in which are disposed sleeves (or sockets) 9 into which the corresponding pins 8 are a force fit.

These pin-and-sleeve arrangements are electrical connectors serving to connect the base 2 to the head 1 both mechanically and electrically, although other mechanical connections (which may be resilient) may be provided if desired.

The sleeves 9 are connected by wires 6 to unit separate from the attachment (and not shown in the drawing) for producing the electricity for the electrical therapy.

The electrodes 3 are covered by a cover 10, e.g., of a foamed material, for forming a barrier preventing direct contact between a person's skin and the electrodes 3.

The cover 10 is detachably secured to the base by a rubber ring 11.

When the base and head are connected together, the unit (not shown) for producing electricity for the electrical therapy is connected by a lead to the wires 6, each wire 6 forming part of a conductor which also comprises a conductive part 4, pin 8 and sleeve 9 for connecting an electrode to the said unit (not shown) for producing electricity.

WHAT WE CLAIM IS:—

1. An attachment for use in massaging apparatus "of the kind described" which comprises a head having a shaft adapted for connection to the massaging device of the apparatus and a base which is arranged to be detachably connected to the head, the base carrying electrodes for applying electrical therapy, the attachment having electrical conductors which, when the base is connected to the head, extend from respective ones of the electrodes in the base into the head, whereby the conductors can be electrically connected by means of a lead connected to the head to a unit for producing electricity for the electrical therapy, each conductor being formed where it passes from the base to the head with a connector having two parts, one part of each connector being disposed on the base and being arranged to connect with the other part of the connector which is disposed on the head.

2. An attachment according to Claim 1, in which one part of each connector comprises a pin arranged to be a force fit within a sleeve which comprises the other part of such connector, the connectors serving to detachably connect the base to the head both electrically and mechanically.

3. An attachment according to Claim 2, in which each pin is connected to a rigid portion of a said conductor.

4. An attachment according to any preceding claim, in which a cover is provided which is to be fitted onto the base of the attachment to form a barrier preventing direct contact between the electrodes and an area of skin to be treated.

5. An attachment substantially as herein described with reference to the accompanying drawings.

6. An attachment according to any preceding claim in combination with a unit for supplying electricity for the electrical therapy.

7. Massaging apparatus of the kind described including an attachment according to any preceding claim.

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1 SHEET *This drawing is a reproduction of the Original on a reduced scale*